

Openbaar gemaakt

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136,400

PATENT



SPECIFICATION

*Application Date, Mar. 1, 1919. No. 5105/19.*

*Complete Left, May 30, 1919.*

*Complete Accepted, Dec. 18, 1919.*

### PROVISIONAL SPECIFICATION.

#### Improvements in Wheels for Road Vehicles.

I, ROLAND JAMES TREES, of "Glasbury", 53, Prospect Road, Moseley, Birmingham, in the County of Warwick, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to wheels for road vehicles, and has for its object to  
5 provide an improved means for attaching such wheels to the axles or hubs which they support.

It is common practice to attach the road wheels of vehicles to their axles or hubs by means of axially disposed bolts passing through a flange upon the hub or axle and through a flange or flanges upon the road wheel. This construction  
10 has the disadvantage that the drive is transmitted from the axle to the wheel through the bolts thus placing considerable shearing stress upon said bolts. By the use of my invention the bolts are relieved of this shearing stress.

According to the present invention the inner side of the wheel of a vehicle is provided with a flanged plate having a clutch face, or projections, holes,  
15 or slots adapted to form a driving engagement with a corresponding clutch face, projections, holes, or slots in the hub flange face, or in a plate securely attached thereto.

In one construction I provide the hub with an adaptor or driving plate. This driving plate is annular in form, and is provided with a number, say six, radial  
20 projections which may be turned or bent up out of the plate. This adaptor or driving plate is provided with a suitable number of the bolt holes which may be provided with bosses made in one with the plate, which bosses project from the plate and from the opposite side to that having the radial projections. The bosses of these bolt holes are adapted to enter holes in the hub flange face,  
25 whilst the radial projections project outwardly towards the end of the axle.

The inner side of the wheel is provided with a flanged plate having a central opening allowing the wheel to be placed on to the hub. The central opening of this flanged plate is preferably provided with a projecting boss which enters  
30 the hole at the centre of the wheel. This flanged plate is also provided with a suitable number of bolt holes, some of which register with the bolt holes provided in the adaptor or driving plate upon the hub. The bolt holes in the flanged plate are also preferably provided with projecting bosses which are adapted to enter holes provided in the wheel.

On the outside of the wheel is preferably provided a second flanged plate  
35 provided with bolt holes corresponding to the bolt holes in the other flanged plate. This second or outer flanged plate is also provided with a central opening adapted to enable it to slip over the hub, and said opening is also preferably provided with an outwardly disposed projecting boss.

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The two flanged plates upon the wheel are preferably provided with a greater number of bolt holes than are provided in the adaptor or driving plate upon the hub. Certain of the bolt holes in the flanged plates upon the wheel are used for bolting said flanges to the wheel, the bolts employed either having counter-sunk heads or screwed ends whereby they can be attached to one plate without projecting therefrom.

The wheel with the two flanged plates securely attached thereto is placed on the hub with the radial projections upon the adaptor or driving plate in driving engagement with radial slots provided in the inner flanged plate of the wheel, and the wheel is then secured to the hub by securing bolts which pass through the holes provided in the hub flange, the driving plate, and the two flanged plates upon the wheel.

By this arrangement the drive is transmitted from the hub flange to the driving plate to a great extent through the projecting bosses of the bolt holes. The drive is transmitted from the driving plate to the inner flange plate of the wheel through the projections upon the driving and the corresponding slots in the inner flange plate. The drive is finally transmitted from the inner flange plate of the wheel to the wheel itself to a great extent through the medium of the projecting bosses of the bolt holes upon the inner flange plate.

It will thus be seen that the axially disposed bolts are securing bolts and that no severe shear stress will be placed upon them.

As the adaptor or driving plate herein described can be readily secured to existing hubs, my invention provides a means whereby a vehicle having fixed wheels can be converted into a vehicle with detachable wheels.

If desired the present invention may be used in conjunction with that forming the subject of my prior Application No. 123,945.

Dated this 28th day of February, 1919.

HAROLD J. C. FORRESTER,

Fellow of the Chartered Institute of Patent Agents,  
Central House, 75, New Street, Birmingham, and  
Jessel Chambers, 88-90, Chancery Lane, London, W.C. 2,  
Agent for the Applicant.

## COMPLETE SPECIFICATION.

### Improvements in Wheels for Road Vehicles.

I, ROLAND JAMES TREX, of "Glasbury", 53, Prospect Road, Moseley, Birmingham, in the County of Warwick, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to wheels for road vehicles, and has for its object to provide an improved means for attaching such wheels to the axles or hubs which they support.

It is common practice to attach the road wheels of vehicles to their axles or hubs by means of axially disposed bolts passing through a flange upon the hub or axle and through a flange or flanges upon the road wheel. This construction has the disadvantage that the drive is transmitted from the axle to the wheel through the bolts thus placing considerable shearing stress upon said bolts. By the use of my invention the bolts are relieved of this shearing stress.

It has, however, been proposed to transmit the drive to the wheel by means

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other than the securing means of the wheel. In this arrangement the brake drum or other driven part was provided with axially projecting pins made integral therewith and adapted to engage in holes in the wheel. In another such construction some of the bolts are left short and pass through the hub flange and merely project into the wheel.

According to the present invention the inner side of the wheel of a vehicle is provided with a flanged plate provided with inter-engaging means upon both sides, those on one side adapted to form a driving engagement with complementary inter-engaging means in the hub flange face or in a plate securely attached thereto, and those upon the other side being adapted to form driving engagement with complementary inter-engaging means in the wheel or in a plate securely attached thereto.

In order that my invention may be clearly understood and more readily carried into practice I have appended hereunto two sheets of drawings illustrating the same, wherein:—

Figure 1 is a sectional view in end elevation shewing a wheel constructed in accordance with my invention.

Figure 2 is a perspective view of the hub driving plate shewn in position on the hub.

Figure 3 is a view in sectional end elevation of the hub driving plate.

Figures 4 and 5 are views in perspective and sectional end elevation respectively of the wheel driving plate.

In the construction illustrated I provide the hub 1 with an adaptor or driving plate 2. This driving plate is annular in form, and is provided with a number say six radial projections 3 which may be turned or bent up out of the plate. This adaptor or driving plate 2 is provided with bolt holes 4 which are provided with bosses 5 made in one with the plate, which bosses project from the plate and from the opposite side to that having the radial projections 3. The bosses 5 of these bolt holes are adapted to enter holes 7 in the hub flange face 6, whilst the radial projections 3 project outwardly towards the end of the axle. Between each pair of projections 3 is a hole 8.

The inner side of the wheel 9 is provided with a flanged plate 10 having a central opening 11 allowing the wheel to be placed on to the hub 1. The central opening 11 of this flanged plate is provided with a projecting boss 12 which enters the hole at the centre of the wheel. This flanged plate 10 is also provided with bolt holes 13, some of which register with the bolt holes 4 provided in the adaptor or driving plate 2. The bolt holes in the flanged plate 10 are also provided with projecting bosses 14 which are adapted to enter holes 15 provided in the wheel 9.

The plate 10 is provided with projections 21 pressed up out of holes 22 corresponding in number and position to the projections 3 provided on plate 2.

On the outside of the wheel is preferably provided a second flanged plate 16 provided with bolt holes 17 corresponding to the bolt holes in the flanged plate 10. This flanged plate 16 is also provided with a central opening adapted to enable it to slip over the hub, and said opening is also preferably provided with an outwardly disposed projecting boss 18.

The two flanged plates 10 and 16 upon the wheel are preferably provided as shewn with a greater number of bolt holes than are provided in the adaptor or driving plate upon the hub. Certain of the bolt holes in the flanged plates 10 and 16 upon the wheel are used for bolting said flanges to the wheel, the bolts 19 either having counter sunk heads or screwed ends 20 whereby they can be attached to one plate 10 without projecting therefrom.

The wheel 9 with the two flanged plates 10 and 16 securely attached thereto is placed on the hub 1 with the radial projections 3 upon the adaptor or driving plate 2 in driving engagement with radial slots 22 provided in the plate 10 of the wheel, and the projections 21 engaging in the holes 8 in the plate 2 and the wheel 9 is then secured to the hub 1 by securing bolts 24 which pass through the

holes provided in the hub flange 6, the driving plate 2, and the two flanged plates 10 and 16 upon the wheel.

Each of the projections 3 and 21 engages with the thickness of the adjacent plate 2 or 10.

By this arrangement the drive is transmitted from the hub flange 6 to the driving plate 2 to a great extent through the projecting bosses 5 of the bolt holes. The drive is transmitted from the driving plate 2 to the inner flange plate 10 of the wheel through the projections 3 and 21 upon the driving plate 2 and plate 10 and the corresponding slots 8 and 22 in the two plates 2 and 10. The drive is finally transmitted from the inner flange plate 10 of the wheel to the wheel itself to a great extent through the medium of the projecting bosses 14 of the bolt holes upon the inner flange plate 10.

It will thus be seen that the axially disposed bolts 24 are securing bolts and that no severe shear stress will be placed upon them.

As the adaptor or driving plate 2 herein described can be readily secured to existing hubs, my invention provides a means whereby a vehicle having fixed wheels can be converted into a vehicle with detachable wheels.

If desired the present invention may be used in conjunction with that forming the subject of my prior Application No. 123,945.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a mounting for vehicle wheels the provision of a plate upon the inner side of the wheel provided with inter-engaging means upon both sides, those on one side adapted to form a driving engagement with complementary inter-engaging means in the hub flange face or in a plate securely attached thereto, and those upon the other side being adapted to form driving engagement with complementary inter-engaging means in the wheel or in a plate securely attached thereto.
2. Apparatus according to Claim 1 wherein a plate is provided with radial projections adjacent to which are holes or slots adapted to accommodate the projections on the other plate.
3. Apparatus according to Claim 1 or 2 wherein one or both of the plates is or are provided with bolt holes having projecting bosses adapted to assist in transmitting the drive.
4. Apparatus according to any of the preceding claims wherein an additional plate is provided upon the outside of the wheel.
5. A mounting for the wheels of vehicles substantially as described with reference to the accompanying drawings.

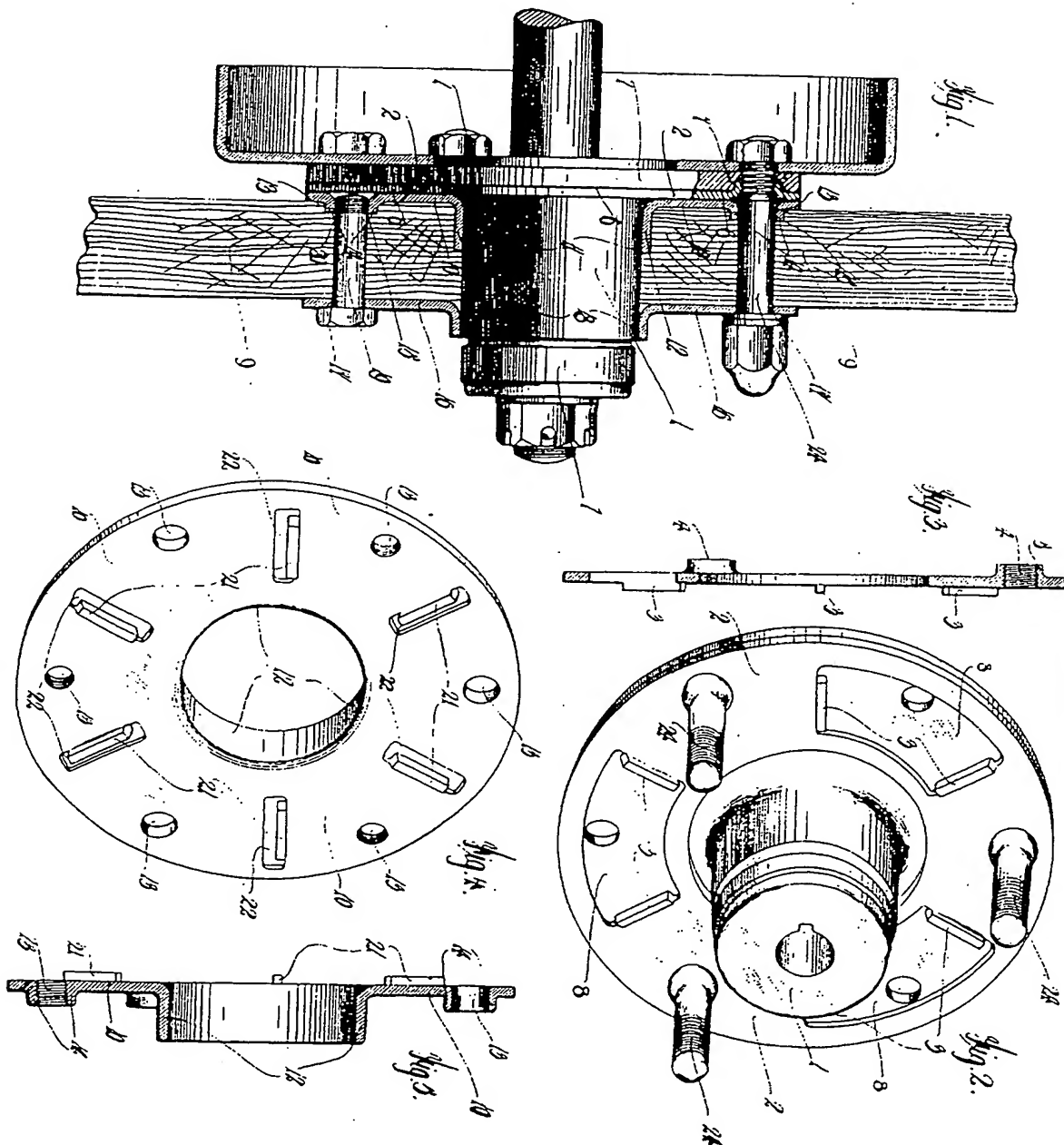
Dated this 29th day of May, 1919.

HAROLD J. C. FORRESTER,  
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Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1919.

[This Drawing is a reproduction of the Original on a reduced scale]

136,400. TREPP'S COMPLETE SPECIFICATION.



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1 SHEET

W. & A. G. Smith, Patent Agents

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